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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/065,510	10/25/2002	Geoffrey Mark Cross	RD29510	2131
6147	7590	12/29/2004	EXAMINER	
GENERAL ELECTRIC COMPANY GLOBAL RESEARCH PATENT DOCKET RM. BLDG. K1-4A59 NISKAYUNA, NY 12309			ALLEN, STEPHONE B	
			ART UNIT	PAPER NUMBER
			2878	

DATE MAILED: 12/29/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/065,510

Applicant(s)

CROSS ET AL.

Examiner

Stephone B. Allen

Art Unit

2878



-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 10/18/04
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,4-8,10 and 12-14 is/are rejected.
- 7) ☒ Claim(s) 2,3,9,11 and 15 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |                                                                                                                                   |                                                                                         |
|-----------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                                                                  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                              | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____                                                |

### **DETAILED ACTION**

Applicant's arguments with respect to claims 1-15 have been considered but are moot in view of the new ground(s) of rejection.

#### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 6, 7, 10, 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Publication 2002/0145103 A1 to Bernardini et al (Barnardini).

The language of the whereby clause is not a positive recitation of the measurement actually being made and will not be given patentable weight.

Barnardini discloses a method and apparatus for obtaining the shape of an object by observing the silhouette or contour of the object from boundaries and employing a space carving process to image data to obtain an accurate model of the object. Bernardini further discloses positioning a light source on one side and viewing the object with imaging means positioned on the opposite side of the object wherein the object blocks a portion of the light from the light source and the blocked portion defining an outline (contour/silhouette) of the object. An image of the object is obtained. The object is positioned to a new position (paragraph 0019) and the steps are repeated. The images obtained are processed using space carving techniques to determine the contour of the object. Bernardini discloses identifying the boundary of the image of the

object (paragraph 0025-0028). Bernardini fails to specifically disclose using space carving processing to determine the leading edge of the object. However, Bernardini does use space carving processing to determine the contour of the object, it would not have been above ordinary skill in the art to manipulate the data to provide information regarding the leading edge of the object, since it would require mere manipulation of data already obtained and would require routine skill in the art.

Claims 4, 5, 8, 13, 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Publication 2002/0145103 A1 to Bernardini et al (Barnardini) in view of the publication to Kutulakos et al. (Kutulakos).

With respect to claims 4 and 13, Bernardini to disclose a method and apparatus with multiple imaging means. Kutulakos discloses the use of multiple imaging devices to obtain separate images of the object from each imaging device and utilizing this data to obtain contour data of the object using space carving techniques. It would have been obvious for one of ordinary skill in the art to modify the invention of Bernardini to include the multiple imaging devices of Kutulakos to increase accuracy in the imaging of the object and determining the leading edge of the object.

With respect to claims 5 and 8, the modified Bernardini discloses the use of multiple imaging devices, however it is silent in designating a minimum number of imaging devices. However, it would have been obvious for one of ordinary skill in the art at the time the invention was made to designate a three camera minimum because it is known in the art that the greater number of cameras the better the quality of the

three-dimensional model.

With respect to claim 14, the apparatus is inherent to the method disclosed above.


***Allowable Subject Matter***

Claims 2, 3, 9, 11 and 15 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephone B. Allen whose telephone number is (571) 272-2434. The examiner can normally be reached on Mon-Thurs from 0900-1700.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dave P. Porta can be reached on (571) 272-2444. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Stephone B. Allen  
Primary Examiner  
Art Unit 2878